

**REMARKS**

**I. CLAIM STATUS**

By this response, Applicants have amended claim 16 and 34. Support for the amendment can be found at least at page 7, lines 16-30, page 17, lines 22-30, and page 18, lines 3-13. Accordingly, claims 16-21 and 31-35 remain for consideration on their merits with claims 22-30 withdrawn in view of the earlier Restriction Requirement.

Applicants acknowledge that the Examiner has withdrawn the previous rejections of claims 16, 17, and 21 under 35 U.S.C. § 102 as anticipated by U.S. Patent No. 5,337,183 to *Rosenblatt*; of claims 16 and 21 under 35 U.S.C. § 103 as unpatentable over U.S. Patent No. 6,215,928 to *Friesem* in view of publication "Active Semiconductor-Based Grating Waveguide Structures" to *Dudovich*; and of claims 18-20 under 35 U.S.C. § 103 as unpatentable over *Rosenblatt* in view of U.S. Patent Application Publication No. 2003/0012237 to *Tuganov*.

**II. REJECTIONS UNDER 35 U.S.C. § 103**

In the Office Action,<sup>1</sup> the Examiner rejected claims 16, 17, 21, and 31-34 under 35 U.S.C. § 103 as unpatentable over U.S. Patent No. 5,337,183 to *Rosenblatt* in view of Japanese Patent Publication No. 63-244004 to *Sonehara*; rejected claims 18-20 under 35 U.S.C. § 103 as unpatentable over *Rosenblatt* and *Sonehara* and further in view of U.S. Patent Application Publication No. 2003/0012237 to *Tuganov*; and rejected

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<sup>1</sup> The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Office Action.

claim 35 under 35 U.S.C. § 103 as unpatentable over *Rosenblatt* and *Sonehara* and further in view of U.S. Patent Application Publication No. 2003/0214700 to *Sidorin*.

Applicants respectfully traverse the rejection of claims 16-21 and 31-35 under 35 U.S.C. § 103 for the reasons of record and for the following additional reasons.

The Examiner cannot establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, the Examiner must make findings with respect to all of the claim limitations and must make “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” See M.P.E.P. §§ 2143.03 and 2141(III), 8th Ed., Rev. 6 (September 2007).

A. U.S. PATENT NO. 5,337,183 TO ROSENBLATT IN VIEW OF JAPANESE PATENT PUBLICATION NO. 63-244004 TO SONEHARA

Regarding the rejection of claims 16, 17, 21, and 31-34, the combination of *Rosenblatt* and *Sonehara* does not teach or suggest each and every element of Applicants' claimed invention. For example, the combination of *Rosenblatt* and *Sonehara* does not teach or suggest “an external cavity configured to propagate a plurality of cavity modes” comprising “a light transmissive material having a selectively variable refractive index to permit wavelength tuning of the filter, said light transmissive material . . . configured to form a tunable cladding layer to change a resonant wavelength of the planar waveguide,” as recited in amended claims 16 and 34.

First, contrary to the Examiner's allegations (Office Action at 3) *Rosenblatt* does not teach or suggest a “plurality of cavity modes,” as claimed. Instead, *Rosenblatt* teaches a device designed for only a *single* guided mode for one wavelength. Column 3, lines 17-26, and Column 15, lines 45-46. No other “cavity modes” are disclosed.

*Rosenblatt* expressly limits its disclosure to the single guided mode design so that "resonant energy is not lost by coupling to additional guide modes." Column 3, lines 22-24. Therefore, *Rosenblatt* expressly teaches away from a device with "a plurality of cavity modes," let alone "configured to propagate a plurality of cavity modes," as claimed.

Second, *Rosenblatt* does not teach the claimed "light transmissive material having a selectively variable refractive index to permit wavelength tuning" where the "light transmissive material" is "configured to form a tunable cladding layer to change a resonant wavelength of the planar waveguide." Rather, *Rosenblatt* expressly teaches away from the claim language.

*Rosenblatt* tunes the refractive index of his device for the "presence or absence" of resonance for a "preselected" wavelength. Column 3, lines 4-6, Column 4, lines 40-48, Column 7, lines 27-32, and Abstract. Therefore, *Rosenblatt's* device is designed to support only one resonant mode for one wavelength so that "resonant energy is not lost by coupling to additional guide modes." Column 3, lines 17-26. That is, *Rosenblatt* designs the device for a single mode of a single resonant wavelength and does not permit wavelength tuning. Column 7, line 44- Column 8, line 48. Therefore, *Rosenblatt* expressly teaches away from the requirement of claims 16 and 34 for "wavelength tuning" with a "tunable cladding layer" configured "to change a resonant wavelength of the planar waveguide."

Third, *Sonehara* neither teaches these elements nor suggests any reason why a person skilled in the art would modify *Rosenblatt* to meet these claim requirements. As the Examiner acknowledges, *Rosenblatt* does not "explicitly disclose a light

transmissive material having a selectively variable refractive index to permit tuning of the filter said light tr[an]smisive material comprising a liquid crystal material." Office action, pages 3-4. Therefore, the Examiner relies on *Sonehara* to teach the material, alleging that the use of the material "would allow for control of the coupling of light." Office action, page 4.

However, even assuming *Sonehara* teaches a "liquid crystal material" or "thermo-optical material," which Applicants do not concede, *Sonehara* fails to cure the deficiencies of *Rosenblatt*. That is *Sonehara* does not teach or suggest "an external cavity configured to propagate a plurality of cavity modes" comprising "a light transmissive material having a selectively variable refractive index to permit wavelength tuning of the filter, said light transmissive material . . . configured to form a tunable cladding layer to change a resonant wavelength of the planar waveguide," as recited in amended claim 16. Therefore, since neither *Rosenblatt* nor *Sonehara*, alone or in combination, teach or suggest all of the claim elements, the rejection of claims 16 and 34 under 35 U.S.C. § 103 should be withdrawn.

Lastly, claims 17, 21 and 31-33 are also allowable over *Rosenblatt* in view of *Sonehara* at least due to their dependence from claim 16. Applicants respectfully request that the Examiner withdraw the rejection of claims 16, 17, 21, and 31-34 under 35 U.S.C. § 103 and allow claims 16, 17, 21, and 31-34.

B. **ROSENBLATT AND SONEHARA AND FURTHER IN VIEW OF  
U.S. PATENT APPLICATION PUBLICATION NO. 2003/0012237  
TO TUGANOV**

As set forth above, neither *Rosenblatt* nor *Sonehara* teach or suggest the claimed "external cavity configured to propagate a plurality of cavity modes" comprising

"a light transmissive material having a selectively variable refractive index to permit wavelength tuning of the filter, said light transmissive material . . . configured to form a tunable cladding layer to change a resonant wavelength of the planar waveguide," as recited in amended claim 16, and, thus dependent claims 18-20. And, even assuming *Tuganov* discloses a "channel-allocation grid," which Applicants do not concede, *Tuganov* fails to compensate for the deficiencies of *Rosenblatt* and *Sonehara*. That is, *Tuganov* also fails to teach the claimed "external cavity" and "light transmissive material," as claimed. Therefore, the rejection of claims 18-20 under 35 U.S.C. § 103 should be withdrawn.

C. **ROSENBLATT AND SONEHARA AND FURTHER IN VIEW OF  
U.S. PATENT APPLICATION PUBLICATION NO. 2003/0214700  
TO SIDORIN**

As set forth above, neither *Rosenblatt* nor *Sonehara* teach or suggest the claimed "external cavity configured to propagate a plurality of cavity modes" comprising "a light transmissive material having a selectively variable refractive index to permit wavelength tuning of the filter, said light transmissive material . . . configured to form a tunable cladding layer to change a resonant wavelength of the planar waveguide," as recited in amended claim 34, and, thus dependent claim 35. And, even assuming *Sidorin* discloses a "thermo-optic polymer," which Applicants do not concede, *Sidorin* fails to compensate for the deficiencies of *Rosenblatt* and *Sonehara*. That is, *Sidorin* also fails to teach the claimed "external cavity" and "light transmissive material," as claimed. Therefore, the rejection of claim 35 under 35 U.S.C. § 103 should be withdrawn.

**Conclusion**

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account no. 06-0916.

Respectfully submitted,

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